State of Illinois
Department of Registration and Education
State Geological Survey Division

M. M. Leighton, Chief

DIXON AREA
Lee County

Guide Leaflet 47 C

By

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Urbana, Illinois
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ITINERARY

0.0 Dixon High School. Line up facing east on south side of Dixon High School (along bank of Rock River).
0.0 Turn right (S) on Peoria St. and cross bridge.
0.2 STOP LIGHT. (1st Street)
0.3 STOP SIGN. (3rd Street)
0.6 Turn left (E) on 7th Street.
0.7 STOP SIGN (Galena Ave.) Junction with routes U.S. 52 and Alt. 30. Continue on Route Alt. 30.
1.1 Fork left (E) on Route Alt. 30. Route passes for several miles over rolling plain formed by Illinoian ground moraine.
8.9 STOP 1. Quarry on east bank of Franklin Creek, north of highway. 30 feet of Shakopee (Lower Ordovician) dolomite is exposed. Rock dominantly thin-bedded dolomite with interlaminated thin sandstones, siltstones, and shales (green to purple); lenses of intraformational conglomerate present. Some layers are marked by ripplemarks and mudcracks. Cryptozoon masses (fossil algae) occur, and about 7 feet above water level there is a layer containing fossil gastropods (snails). A few chert nodules may be seen.
9.4 Enter Franklin Grove.
9.6 Turn left (N) at Shell gas station
9.7 Turn left (W).
11.7 Turn left (S), just east of white house, onto farm lane.
12.1 STOP 2. Exposures in bank of Franklin Creek; Shangri-La Estate of Mr. F. N. Hurd.
New Richmond (Lower Ordovician) sandstone, conformably overlain by Shakopee dolomite. Note large scale cross-bedding in the sandstone. This is the oldest formation exposed in the Dixon Area. Many outcrops resemble the younger St. Peter sandstone, but laboratory study shows garnet rather than zircon to be the dominant heavy mineral of the New Richmond. Note remnants of Wisconsin outwash terrace, on which house stands. The New Richmond sandstone outcrops at this level here because we are on the crest of the La Salle Anticline, which strikes N.NW. To NE and SW younger formations lie at this elevation.
12.1 Retrace route to road.
12.5 Turn left (W)
13.6 STOP 3. St. Peter sandstone (Middle Ordovician) on bank of Franklin Creek. This weak, cross-bedded sandstone exposed in creek bank has zircon (not garnet) as the dominant heavy mineral. Note that the St. Peter is here outcropping at same level as New Richmond sandstone one-half mile up-stream. The St. Peter here fills an ancient valley carved in the Shakopee and New Richmond beds; this is known as an "unconformity".
14.4 Turn left (W) at school house.
15.1 Bridge over Franklin Creek; outcrops of St. Peter sandstone west of creek show steep W.SW. dip. This is because we are beginning to descend steep SW flank of the La Salle Anticline.
17.4 STOP SIGN.
18.4 STOP SIGN. Turn right (N) on Route 2.
19.4 Road cut exposing Glenwood dolomite and sandstone (Middle Ordovician).
19.9 Road cut exposing St. Peter sandstone.

20.0 Turn left (W) on gravel road.
21.0 Forks. STOP 4. Go east on foot via land through woods to north. Rock River Bluffs and good view of anticlinal fold in the St. Peter sandstone. This fold has been named the Grand Detour Anticline.

Gravels from crevasse fillings made when the Illinoian Ice Sheet was stagnant may be seen at top of bluff.

21.0 Turn and retrace route east to Ill. Route 2.
22.0 STOP SIGN. Turn left (W) on Route 2.
22.6 Enter Grand Detour.
22.8 John Deere Park. LUNCH STOP.
23.7 Turn right (W) onto gravel road.
24.7 Fork. Turn left (S).
25.2 STOP 5. Old pre-Illinois valley to east.
This old valley was followed by the post-Illinois Rock River up to a point a short distance northeast. Here old crevasse filling deposits of the Illinoian Glacier blocked the channel and the river swung to the west to form the Grand Detour bend.
25.8 Fork. Turn left (S).
26.2 STOP 6. Quarry in Platteville (Middle Ordovician) limestone. Extremely fossiliferous limestone in lower part of Platteville formation. A line of springs at base of hill near road marks contact between the Platteville and the impervious Glenwood shale which underlies it.
26.2 Continue south.
27.9 Medusa Cement Plant and Quarry.
28.1 STOP SIGN. Junction with Ill. Route 2; continue ahead (SW) on Route 2.
30.9 STOP SIGN (Galena Ave.). Continue ahead.
31.0 STOP SIGN (Peoria Ave.). Turn right (N) on Peoria.
31.1 STOP LIGHT. Continue ahead and cross Rock River.
31.4 STOP SIGN. Junction routes Illinois 2 and U.S. Alt. 30. Turn left (W).
31.8 Turn right (N) on 2nd Street at sign to Eichholz Machine Shop.
32.0 Turn left (W) on Ameda St.
32.1 STOP 7. Old quarry in Galena dolomite (Middle Ordovician). Massive dolomite layers contain large numbers of the index fossil, Receptaculites oweni. This is an extinct type of sponge, popularly called "sunflower coral".

BON VOYAGE!

GEOLOGIC HISTORY OF THE DIXON AREA BEDROCK FORMATIONS

The strata exposed in the area are all marine sediments, chiefly dolomites, limestones, and sandstones. They are very old, belonging to the Ordovician period of the Paleozoic Era (Era of Ancient Life). Although the sea covered the upper Mississippi Valley during most of this period it withdrew between deposition of the Shakopee dolomite and the St. Peter sandstone. Deep erosion of the Shakopee and older formations during this interval of marine withdrawal resulted in a hilly topography having as much as 600 feet of relief. Consequently the initial deposit of the returning sea, the St. Peter sandstone, is very thick over the old buried valleys and thin over the hills.

Strata belonging to the following formations, from top to bottom, may be observed in the area:

Paleozoic Era
Ordovician Period

Galena Dolomite	--buff, coarsely crystalline, porous, partly cherty dolomite in massive beds, locally containing the fossil sponge Receptaculites (the "Galena sunflower"). The lead and zinc deposits of northwestern Illinois occur in this formation--about 200 feet thick in the Dixon area.
Platteville Limestone	--blue to buff, finely crystalline, dense limestones and dolomites in thin beds; contains many fossils; quarried for Portland cement at Dixon; forms picturesque cliffs along Rock River; about 120 feet thick.
Glenwood Formation	--green shales, green sandstones, and buff dolomites, interbedded, about 25 feet thick.
St. Peter Sandstone	--pure quartz sandstone, white to buff in color, in thick, partly cross-bedded layers; quarried for ceramic glaze at Oregon; 25 to 400 feet thick because of very uneven base; forms conspicuous bluffs and isolated hills, such as Castle Rock, along Rock River.
Shakopee Dolomite	--cherty, impure, buff dolomites, in thin beds, with layers of shale, siltstone, and sandstone; contains a few marine snails and seaweed remains; up to 150 feet thick in this area; removed to northward by pro-St. Peter erosion.
New Richmond Sandstone	--indistinguishable in outcrop from the St. Peter sandstone, and exposed only along Franklin Creek; the oldest bedrock formation cropping out in Illinoist, except for Cambrian strata at Oregon.

LA SALLE ANTICLINE

At the end of the Mississippian period, late in Paleozoic time, movement of the earth's crust produced a major upfold known as the La Salle Anticline, which trends northward between Dixon and Franklin Grove. Erosion of the anticline by

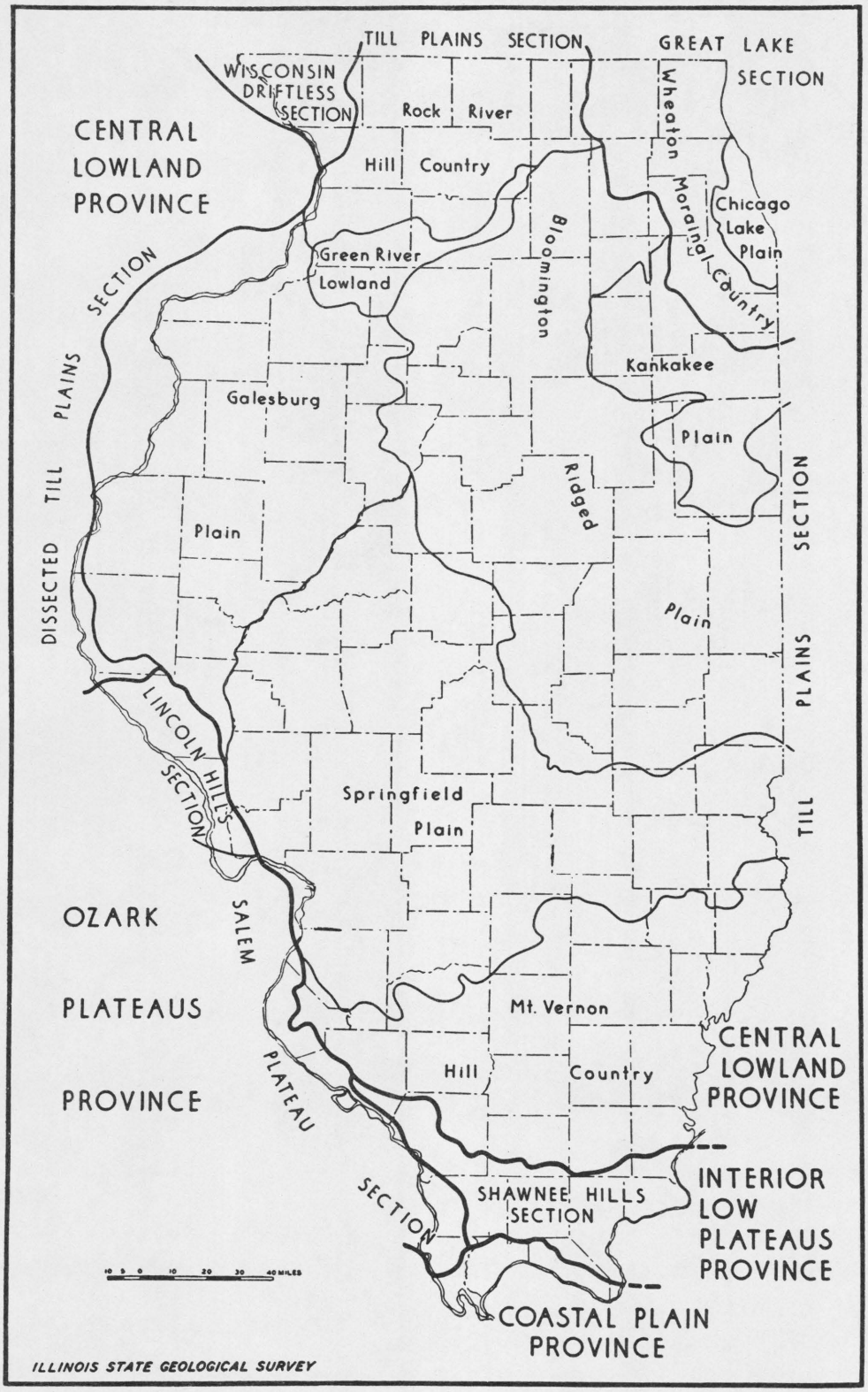
Rock River and its tributaries is responsible for the exposures of St. Peter sandstone and older formations in this area. Because of the dip on the west side of the fold Galena dolomite crops out at Dixon at about the same elevation as the New Richmond sandstone along Franklin Creek, although the Galena is some 500 feet higher in the stratigraphic section. Many other folds and a large number of faults developed in the area at about the same time, or at the close of the Paleozoic era.

EROSIONAL HISTORY

After deposition of the Paleozoic sediments the upper Mississippi Valley was permanently uplifted above sea-level and underwent many millions of years of erosion, during which the area was reduced to a featureless plain at least once. Uplift of this plain before the glacial period rejuvenated the streams, which carved the region into a series of hills and valleys. Solution by ground water produced sink-holes in the Platteville and Galena formations in places. Before glaciation Rock River ran southward from Rockford to the vicinity of Hennepin, where it joined the old Mississippi River flowing eastward from Clinton. Thence the drainage continued southwestward along the valley of the present Illinois River.

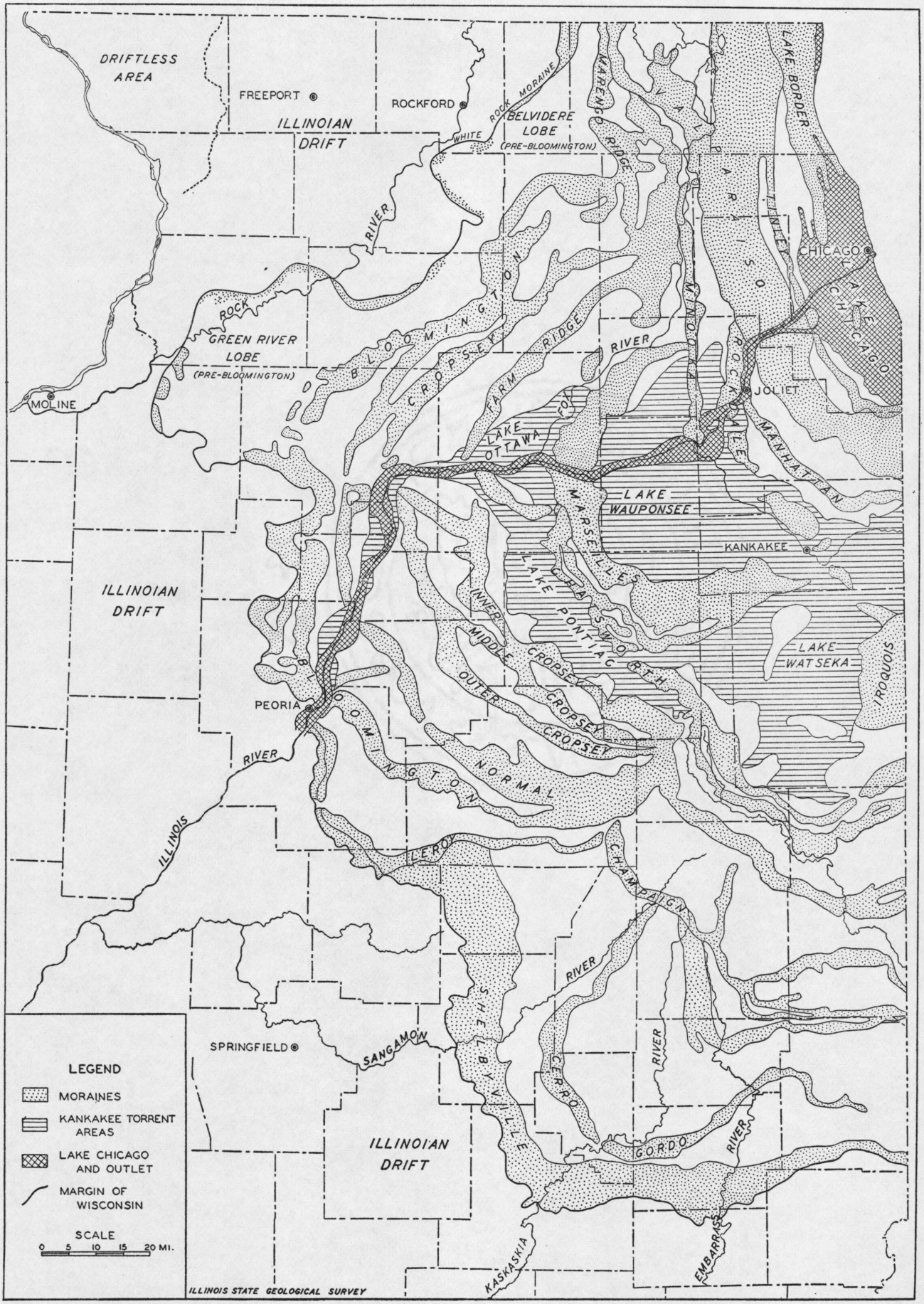
PLEISTOCENE (ICE AGE) HISTORY

The Illinoian ice-sheet covered all of the Dixon area. When the ice disappeared it left a blanket of till in the form of rolling ground-moraine over most of the bedrock. Sand and gravel also accumulated in water-filled crevasses in the melting ice. Rock River assumed its present course after its old channel was filled by Illinois drift. The Wisconsin ice-sheet did not invade the area. However, a lobe of the Wisconsin ice reached Janesville, Wisconsin, and sent a flood of outwash and water down Rock River. The outwash, consisting of stratified sand and fine gravel, partly filled the river channel. Subsequent erosion has carved these deposits into a series of flat-topped terraces on each side of the river.



PHYSIOGRAPHIC DIVISIONS OF ILLINOIS

(Reprinted from Report of Investigations No. 129, Physiographic Divisions of Illinois, by M. M. Leighton, George E. Ekblaw, and Leland Horberg)



GLACIAL GEOLOGY IN NORTHEASTERN ILLINOIS
Compiled by George E. Ekblaw from data furnished by the Survey
January 1, 1942

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Route Map
DIXON Field Trip
on May 10, 1947

Educational Extension

Illinois State Geological Survey